

By: Yasushige NAKAMURA et al.
Serial No. 10/084,327

Group Art Unit: 1756
Examiner: Christopher D. Rodee

REMARKS

Claims 9 and 11-22 are pending in the present application. Claims 9 and 11-22 are rejected. Claims 9 and 11-22 are objected to. Claims 9, 11, 13, 14, 16-19 and 22 are herein amended. Claims 23-32 are herein added. Claim 12 is herein canceled.

Claim Objections

Claim 14 is objected to because “an polyester” should be “a polyester” in line 1. Applicants have made this correction.

Double Patenting

Claims 9, 11, and 12 are provisionally rejected under 35 U.S.C. §101 as claiming the same invention as that of claims 9, 11, and 12 of copending Application No. 09/617748. Claims 13-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1, 3-6, 9, and 13-16 of copending Application No. 09/617748.

Applicants note that the Examiner is apparently unaware that the parent application has been abandoned.

Claim Rejections under 35 U.S.C. §112, first paragraph

Claim 12 is rejected under 35 U.S.C. §112, first paragraph, for claiming a single means.

Claim 12 is herein canceled.

Claims 21 and 22 are rejected under 35 U.S.C. §112, first paragraph, because claim 21 states that the alcohol component contains more than 90 mole % of the bisphenol-A-alkylene oxide additive. The Examiner notes that the specification on page 15, lines 9-13 states that this component can be used in an amount of 80 mole % or more, preferably 90 mole % or 95 mole %. The Examiner asserts that this does not provide basis to exclude 90 mole % but to include all other percentages above 90 mole %.

Applicants respectfully disagree with this rejection. Applicants note that MPEP §2163.05(III) indicates that the law requires “only sufficient description to show one of skill in the art that the inventor possessed the claimed invention at the time of filing.” As noted, the specification teaches a preferred range of greater than 90 mol%; it is allowable to disclose a broad range from which later claims may carve a patentable portion. Applicants refer to *Wertheim*, in which the applicant disclosed a range of 25-60%, and the Federal Circuit Court overturned the rejection of his claim of 35-60%, finding that it met the written description requirement. *In re Wertheim*, 541 F.2d 257, 191 USPQ2d 90 (CCPA 1976).

Claim 22 specifies a collecting step using a “high efficiency particulate air” filter. The Examiner asserts that he was unable to find basis for this limitation in the specification. The Examiner notes that HEPA filters are disclosed but there is no apparent description of this abbreviation meaning the same as the claim language.

Applicants respectfully disagree with this rejection. Applicants note that anyone skilled in the art would immediately recognize HEPA as the acronym for “high efficiency particulate air”, the

meaning of which is well established in the prior art as a filter capable of capturing 99.97% of particles up to 1 micron in size.

Claims 12, 13, 16, 17, and 19 are rejected under 35 U.S.C. §112, second paragraph. The Examiner asserts that Claim 12 is indefinite because it is unclear what the developing mechanism is, and unclear if this is a single means or a combination of means that perform the recited function.

Applicants note that the developing mechanism refers to a “developing device” as described in the specification on page 10, lines 8-16. Applicants have amended the claims to more clearly recite the invention.

Claim 13 is indefinite because there is no antecedent basis for “the component having a molecular weight of 500 or less”. The Examiner also asserts that the claim is also indefinite because the “ratio” of the component is defined as an amount in parts by weight.

Applicants herein amend claim 13 and others to refer to “~~the ratio of the component~~ amount of the toner having a molecular weight of 500 or less”, which Applicants submit obviates the rejection for lack of antecedent basis, and also the rejection of the use of the term “ratio”.

Claim 16 is indefinite because “n” is undefined. Applicants herein add “n=14 or more” to the claim.

Claim 17 is indefinite because it is unclear if the polypropylene's molecular weight is based on number-average, weight-average, viscosity-average, or some other basis.

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Applicants note that the molecular weight refers to the weight-average basis. Applicants note that it is standard in the art that the molecular weight basis is weight-average, unless indicated to the contrary.

Claim 19 is indefinite because there is no antecedent basis for "said 500 to 1000 weight component". Applicants herein amend the claim to refer to "said amount of the toner measured by gel permeation chromatography to have molecular weight of 500 to 1000 weight component".

Claim Rejections under 35 U.S.C. §102(b) and (e)

Claim 11 is rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,175,715 to Hirao et al.

The Examiner notes that the toner does not provide a patentable limitation to the apparatus because an apparatus is defined by its structure not the materials acted upon by the apparatus.

Applicants herein amend this claim to positively recite a supply of toner as a component of the image forming apparatus. Applicants submit that this amendment provides a patentable limitation over the cited reference.

Claim 12 is rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,840,459 to Ohno et al. or EP 901046.

Claim 12 is herein canceled.

Claim Rejections under 35 U.S.C. §103(a)

Claims 9, 13, 19, and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 7-244400 (JP '400) in view of *Handbook of Imaging Materials* to Diamond, pp. 160-162, and further in view of *Electrophotography* to Schaffert, pp. 55-57.

The Examiner notes that JP '400 does not disclose the specific process steps for using the toner in the Abstract, but that Diamond discusses the conventional process steps of using a toner to form a visible image, including fusing with a radiant heat from a lamp.

The Examiner notes that Schaffert discloses fixing of toner particles through the use of a high intensity flash fusing process. Fusing of scattered toner particles (e.g., fog) was avoided by this process.

The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the toner of JP '400 in an imaging process that includes a flash fusing step because JP '400 seeks to form toner images with its toner by an electrostatic process and the supporting art shows that electrostatic processes are well known in the art for the formation of images. Further, JP '400 is specifically concerned with avoiding toner scattering and Schaffert teaches that flash fusing is known in the art to avoid fusing of scattered toner particles to paper.

Applicants respectfully disagree with this rejection, and note that the Examiner has not shown a suggestion to use the particularly claimed toner in the particularly claimed method. Applicants acknowledge that the cited references appear to teach as the Examiner asserts. However, the mere

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fact that the toner of the present invention is suitable for the flash fixing method of the present invention is not reason enough to find obviousness. None of the cited references appear to indicate that the disclosed toner may be used in the flash fixing method. Schaffert does not state that the claimed toner could be used in the flash fixing process disclosed. Moreover, Applicants note that JP '400 indicates that its toner is excellent in preventing scattering of the particles; therefore, Applicants suggest that one skilled in the art would have found no need to use such a toner in a flash fusing process, which itself has the advantage of avoiding scattering. It would appear that the Examiner is implying that it would have been obvious to try the prior art toners in the flash fixing method disclosed by Schaffert, however, Applicants submit that this amounts to an "obvious-to-try" rejection of the type that has been discredited.

Moreover, Applicants herein add additional limitation to claim 9, which now includes an additional step.

Claims 9, 13, 18, 19, and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over JP 10-198068 (JP '068) in view of *Handbook of Imaging Materials* to Diamond, pp. 160-162, and further in view of *Electrophotography* to Schaffert, pp. 55-57.

The Examiner asserts that JP '068 discloses a color toner including a colorant and a vinyl resin. The toner has less than 10 weight percent of components with a molecular weight less than or equal to 1000. The inventive two-component developer seeks to reduce fog in its imaging process. JP '068 does not disclose using the developer in a flash fusing imaging process.

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The Examiner concludes that it would have been obvious to use the toner of JP '068 in an imaging process that includes a flash fusing step. Further, JP '068 is specifically concerned with avoiding fog and Schaffert teaches that flash fusing is known in the art to avoid fog. The references are concerned with similar issues, which motivate the combination of flash fusing in an imaging process with the toner of the JP reference.

Applicants respectfully disagree with this rejection, and note that the Examiner has not shown a suggestion to use the particularly claimed toner in the particularly claimed method. As indicated above, the mere fact that the toner of the present invention is suitable for the flash fixing method of the present invention is not reason enough to find obviousness. None of the cited references appear to indicate that the disclosed toner may be used in the flash fixing method. Schaffert does not state that the claimed toner could be used in the flash fixing process disclosed. Applicants note that JP '068 indicates that its toner is excellent in preventing scattering of the particles and preventing fog; therefore, Applicants suggest that one skilled in the art would have found no motivation to use such a toner in a flash fusing process, which itself has the advantage of avoiding scattering. As noted above, it would appear that the Examiner is implying that it would have been "obvious to try" the prior art toners in the flash fixing method disclosed by Schaffert.

Claims 9, 13, 18, 19, and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over EP 901046 in view of Handbook of Imaging Materials to Diamond, pp. 160-162, and further in view of Electrophotography to Schaffert, pp.55-57.

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The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the toner of the EP reference in an imaging process that includes a flash fusing step because the EP reference seeks to form toner images with its toner by an electrostatic process and the supporting art shows that electrostatic processes are well known in the art for the formation of images.

Applicants respectfully disagree with this rejection for the same reasons as noted above.

Claims 9, 13-15 and 19-22 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohno et al. in view of Diamond, pp. 160-162, and further in view of Schaffert, pp. 55-57.

The Examiner notes that the cited reference does not specify the percentage of components having a molecular weight of 500 or less, but the reference does disclose that for the entire range of components having a molecular weight of 1000 or less, the amount is very small: 5.2 to 6.6 %. Given the small amount of components over the molecular weight range up to 1000 and the use of higher molecular weight components to produce the polyester (e.g., the bisphenol adducts), the Examiner asserts that it is reasonable to expect that less than 4 parts of the toner would be components having a molecular weight below 500.

The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the toner of Ohno in an imaging process that includes a flash fusing step because Ohno et al. seeks to form toner images with its toner by an electrostatic process and the supporting art shows that electrostatic processes are well known in the art for the formation of images.

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Applicants respectfully disagree with this rejection for the same reasons as noted above. The Examiner admits that Ohno et al. does not disclose using the developer in a flash fusing imaging process, but merely discloses heat fixing of the toner images. The mere fact that the Examiner now recognizes that an advantage is to be gained by the noted process using the toners of Ohno et al. is not the standard for establishing obviousness. Moreover, the Examiner's statement with regard to the "reasonableness" of expecting that less than 4 parts of the toner would be components having a molecular weight below 500 is also not a proper standard for finding obviousness, since it is clear that more than 4 parts of the toner in 100 could have the stated molecular weight, and there is no suggestion to have less than 4 parts of components below 500.

Claims 9, 13, 18, 19, and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent 5,985,502 to Ayaki et al. in view of Diamond, pp. 160-162, and further in view of Schaffert, pp. 55-57.

The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the toner of Ayaki in an imaging process that includes a flash fusing step because the Ayaki seeks to form toner images with its toner by an electrostatic process and the supporting art shows that electrostatic processes are well known in the art for the formation of images. Additionally, flash fusing permits the artisan to obtain a quick fusing with minimal fusing of scattered toner. As the references have common concerns (i.e., toner scattering) the artisan would expect an advantage by a flash fusing process using Ayaki's toners.

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Applicants respectfully disagree with this rejection for the same reasons as noted above. The Examiner admits that Ayaki et al. does not disclose using the developer in a flash fusing imaging process, but merely discloses heat fixing of the toner images.

Claim 16 is rejected under 35 U.S.C. §103(a) as being unpatentable over JP '400 in view of Diamond, pp. 160-162, and further in view of Schaffert, pp. 55-57 as applied to claims 9, 13, and 19 above, and still further in view of U.S. Patent No. 5,741,617 to Inaba et al. Claim 17 is rejected under 35 U.S.C. §103(a) as being unpatentable over JP '400 in view of Diamond, pp. 160-162, and further in view of Schaffert, pp. 55-57, as applied to claims 9, 13, and 19 above, and still further in view of in U.S. Patent 6,052,940 to Fukuzawa et al.

Applicants disagreed with the rejection of claim 9 as indicated above. Because claims 16 and 17 are dependent from claim 9, and necessarily include its limitations, we similarly disagree with this rejection.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that claims 9, 11, and 13-33, as amended, are in condition for allowance. Applicants earnestly request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for appropriate disposition of this case.

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees that may be due with respect to this paper to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE
Serial No. 10/084,327

IN THE CLAIMS:

The claims have been amended as follows:

9. (Amended) An image forming method comprising:

a step of forming an image on a medium by using a developer comprising a toner in which the ~~ratio of the component~~ amount of the toner measured by gel permeation chromatography to have a weight average molecular weight of 500 to 1000 is less than 10 parts by weight with respect to ~~the~~ 100 parts by weight of the entire toner; ~~and~~

a step of performing flash fixation of the toner on said medium, and

a step of collecting with a filter a sublimate of a binder of the toner caused by the flash fixing.

11. (Amended) An image forming apparatus comprising; ;

an image forming unit for forming a toner image on a medium,

~~by using~~ a supply of toner in which the ~~ratio of the component~~ amount of the toner measured by gel permeation chromatography to have a weight average molecular weight of 500 to 1000 is less than 10 parts by weight with respect to ~~the~~ 100 parts by weight of the entire toner,

a flash fixing unit for performing flash fixation of the toner on said medium, and

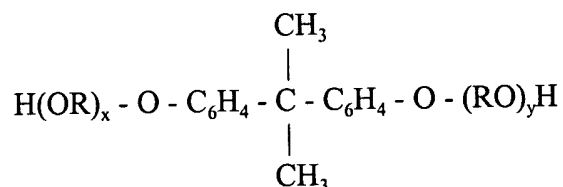
a filter for collecting dust of said apparatus.

13. (Amended) The image forming method of claim 9, wherein:

the ~~ratio of the component~~ amount of the toner having a weight average molecular weight of 500 or less ~~of said toner~~, measured by gel permeation chromatography, is less than 4 parts by weight with respect to ~~the~~ 100 parts by weight of the entire toner.

14. (Amended) The image forming method of claim 9, wherein:

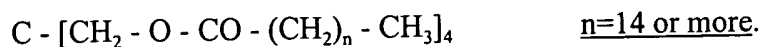
said binding agent resin comprises at least a polyester resin prepared from ~~an~~ a polyester alcohol component consisting of a bisphenol-A-alkylene oxide additive, as an alcohol, expressed by the chemical formula given below, and an acid:



where, R is ethylene or propylene, and x and y are both integers equal to 1 or more.

16. (Amended) The image forming method of claim 9, wherein:

said toner further includes 0.01 to 10 parts by weight for 100 parts by weight of the toner of the compound given by chemical formula given below:



17. (Amended) The image forming method of claim 9, wherein:

said toner further includes a polypropylene compound with ~~an~~ a weight average molecular weight average of 10,000 or more.

18. (Amended) The image forming method of claim 9, wherein:

~~a component~~ the amount of the toner having a weight average molecular weight of 500 or less, as measured by gel permeation chromatography, is less than 4 parts by weight with respect to 100 parts by weight of the entire toner; and

said developer includes a carrier having an average particle diameter of 30 to 100 μm .

19. (Amended) The image forming method of claim 9, wherein said amount of the toner measured by gel permeation chromatography to have a weight average molecular weight of 500 to 1000 ~~weight component~~ is 5 parts by weight or less with respect to 100 parts by weight of the entire toner.

22. (Amended) The image forming method of claim 9, ~~further including collecting a sublimate of a binder of the toner caused by the flash fixing with~~ wherein the filter is a high efficiency particulate air filter.